Xerox Docket No. A3211-US-NP

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re Application of	Group Art Unit: 2836
Applicant: Franciscus G. J. Claassen	Confirmation No. 7673
Application No. 10/623,906	Examiner: Ann Thi Hoang
Filed: 07/21/2003	
Title: POWER SUPPLY HAVING TWO VOLTAGE OUTPUTS	Customer No.: 25453

Sir:

APPEAL BRIEF PURSUANT TO 37 C.F.R. 1.192

Table Of Contents

APPELLANT'S BRIEF ON APPEAL

Appellants hereby appeal to the Board of Patent Appeals and Interferences from the Examiner's Final Rejection of claims 1, 2, 7-11, 16-20, which was contained in the Office Action filed November 20, 2006.

A timely Notice of Appeal was filed January 9, 2007.

Real Party In Interest

Xerox Corporation is the real party in interest.

Related Appeals And Interferences

No appeals or interferences are known which will directly affect or be directly affected by or have bearing on the Board's decision in the pending appeal.

Status Of The Claims

Appendix I provides a clean, double-spaced copy of the claims on appeal.

Claims 1, 2, 7-11, 16-20 are all pending and stand rejected.

Status Of Amendments

No Amendments have been filed since the Final Rejection.

Summary of Claimed Subject Matter

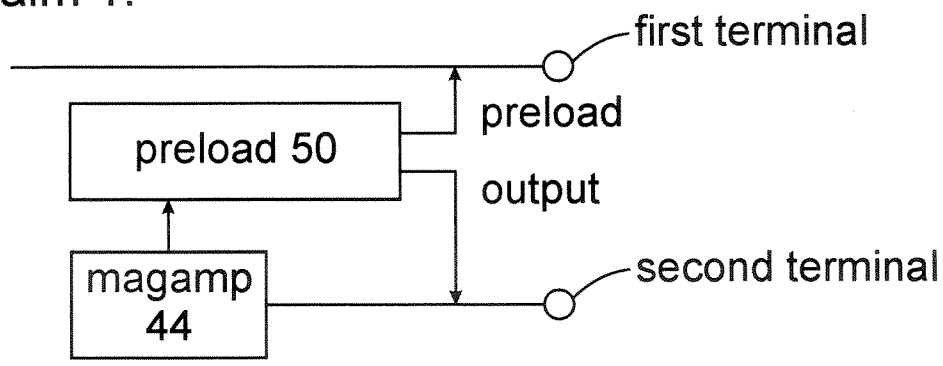
The invention relates to a power supply having two output terminals, each terminal having a different output voltage. In some contexts, one or the other terminal will experience a temporary heavy current draw, such as to warm up a copier. The overall point is to permit the heavy current draw from one output terminal without adversely affecting the other output terminal.

As described with reference to Figure 2 of the Specification as filed, a power supply 10 has two output terminals, 20 and 22; ideally, each output

terminal should output a predetermined desired voltage regardless of any draw on the other terminal (see page 4, lines 11-23). To obtain this result, a "preload circuit" 50 is interposed between the circuits leading to each output terminal 20, 22: as noted at page 4, lines 22-24, the preload circuit 50 accepts as a control input a signal from the magamp controller 44 operative of secondary output 22. Further, as described at page 5, lines 2-4, "The overall function of preload circuit 50 is to apply a preload on the main circuit [to output 20] in case the secondary circuit [to output 22] goes out of control."

Below is a diagram of the elements recited in claim 1; this is a simplified version of Figure 2 as filed. The preload circuit 50 receives an **input** from the magamp controller, and, as claimed, outputs to **both** the first and second terminal.

Claim 1:



Issues For Review By The Board

The following issues are presented for review by the Board of Patent Appeals and Interferences:

1. Whether Claims 1, 2, and 7-11 are obvious under 35 USC 103 in view of teachings in Wright (USP 5,479,087).

2. Whether Claims 16-20 are obvious under 35 USC 103 in view of teachings in Wright and further in view of Chapman et al (USP 6,370,354).

Arguments

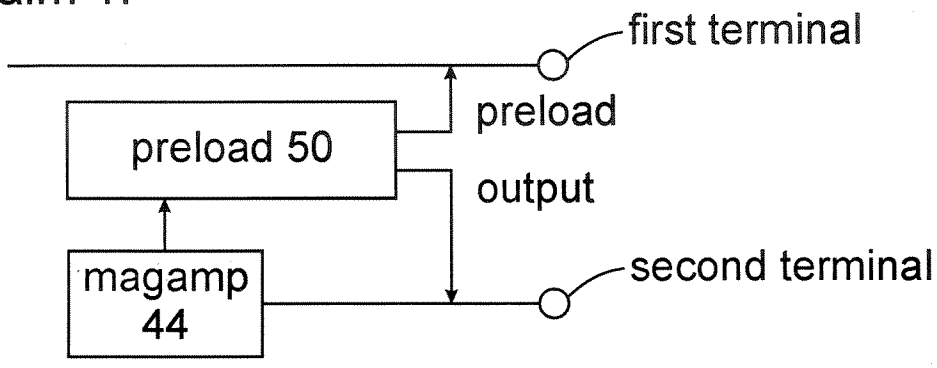
The various claims have been rejected under 35 USC 102 or 35 USC 103 in view of Wright. The following discussion will center on claim 1, as the other independent claim, claim 16, is directed to the power supply of claim 1 in a printing context, but includes all the relevant limitations of claim 1.

Claim 1 reads as follows (emphases added):

> 1. A power supply accepting a mains voltage as an input and outputting a first predetermined voltage from a first terminal and a second predetermined voltage from a second terminal, comprising:
>
> a main circuit for deriving the first predetermined voltage from the mains voltage;
>
> a secondary circuit for deriving the second pre-determined voltage from the main circuit, the secondary circuit including a post regulator circuit including a magamp controller; and
>
> a **preload** circuit **applying a preload on the main circuit** as a result of the secondary circuit going out of control, the **preload circuit including an output directly to the second terminal and an input from the magamp controller.**

Below is a diagram of the elements recited in claim 1. The preload circuit receives an **input** from the magamp controller, and, as claimed, outputs to **both** the first and second terminal.

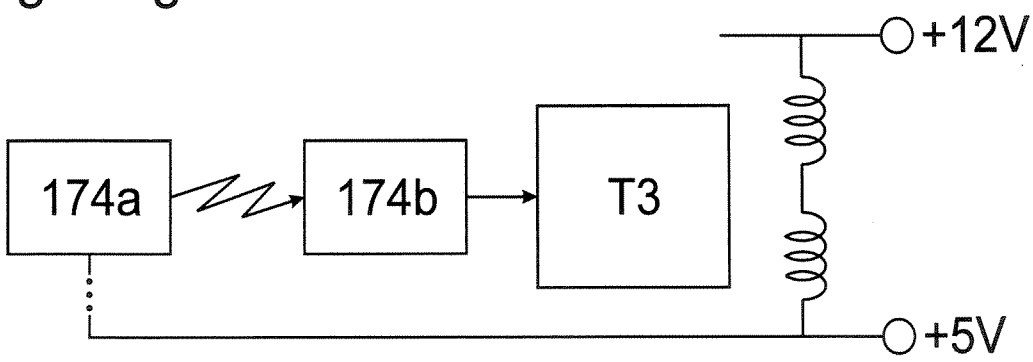
Claim 1:



The rejection states the Figure 3 embodiment of Wright distinguishes itself from the magamp-based controller shown in Figure 1B of Wright; but the use of a magamp controller, as in the claimed invention, would have been obvious based on the disclosure of the magamp controller 40 in Figure 1B of Wright.

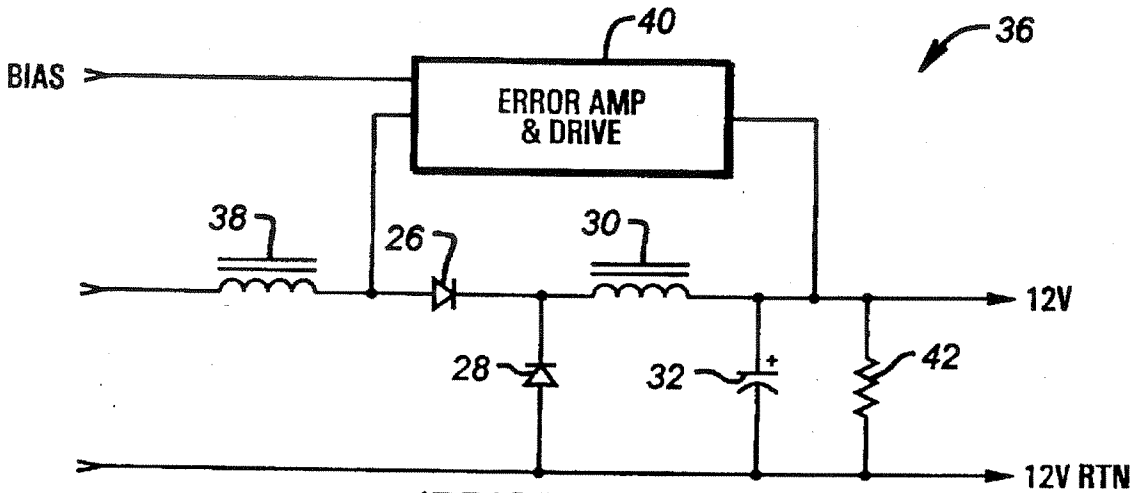
With regard to the Figure 3 embodiment of Wright, the embodiment describes a "coupled-inductor topology" which is utterly different from the claimed invention. The passage in Wright cited in the rejection, column 9, lines 22-67, describes a system in which the +5V output terminal is controlled via a loop, through resistor 172 and optocouplers 174a, 174b, to the *input* side of a transformer T3, as shown in this simplified version of Wright Fig. 3.

Wright Fig. 3:



With a coupled-inductor topology, because the two outputs share the **same** transformer output coil, there can be no true independence between the outputs of the main and secondary terminals: each output voltage must change when the load on the other output changes. This disclosure is simply unrelated to a *magamp* control of the *secondary circuit*, and a person of skill in the art would see no teaching relevant to the claimed invention.

Figure 1B of Wright describes a magamp control 40, but the magamp control is simply used as a direct feedback loop involving the *main circuit only.*



(PRIOR ART)

FIG. 1B

While Figure 1B of Wright shows generally that a magamp controller is one type of approach for controlling a two-output power supply, the feedback loop of Figure 1B of Wright simply shows magamp control of *one* output; claim 1, in contrast, recites an effective magamp control of *both* outputs.

The Examiner states that Wright discusses, such as at 3:10-34, that magamp controllers are generally known to be useful in the power-supply context, and it is therefore immaterial whether the magamp is used to control a "main" or "secondary" circuit. However, in the claimed invention, a magamp circuit is used to control a preload circuit that affects **both** of the outputs. Fig. 1B of Wright shows magamp control of *only one output*; Fig. 3 shows a completely different topography, i.e., a common transformer coil, to influence two outputs.

More to the point, Wright posits Fig. 3 as something different from, and better than, the magamp control of Fig 1B (see 3:30-34). By presenting the

Fig. 3 shared-coil embodiment as *superior* to the magamp arrangement of Fig 1B, Wright indeed teaches *away* from the use of a magamp for controlling *both* outputs.

In the last response, the Examiner seems to disagree that claim 1 recites that the preload circuit affects **both** the first terminal and the second terminal. However, the last clause of claim 1 indicates this is what is being claimed: "a preload circuit **applying a preload on the main circuit** as a result of the secondary circuit going out of control, the preload circuit including an **output directly to the second terminal** and an input from the magamp controller." As can be seen, the main circuit and the second terminal (part of the secondary circuit) both receive an output from the preload circuit. Once again, this condition of using a magamp in control of *both* outputs is not disclosed or suggested by Wright.

Finally, neither Fig 1B nor Fig. 3 of Wright remotely suggest an explicitly recited principle of claim 1: "applying a preload on the main circuit **as a result of** the secondary circuit going out of control [as detected by the recited magamp controller]." The idea of applying a preload to one output makes no sense in the context of Wright Fig. 3, as Fig. 3 relies on the two outputs *sharing* a transformer coil. The Fig. 1B embodiment, because it is directed to control of only one output, cannot suggest using a detected condition of one output to influence the *other* output, as recited. The two teachings cannot be combined to show the recited aspect as obvious.

For these reasons, claim 1 and its dependent claims 7-11 are deemed allowable.

Claims 16-20 have been rejected over Wright in view of Chapman; Chapman shows the use of a power supply in a printer. Claim 16, from which claims 17-20 are dependent, includes the limitations of claim 1, and is therefore deemed allowable, along with its dependent claims.

Summary

Claimed invention: preload circuit influences main circuit in response to secondary circuit going out of control, and also outputs to second terminal.

Wright Fig. 3: two outputs share a transformer coil; recited preload circuit makes no sense in this context.

Wright Fig. 1B: generally discusses use of magamp control, but no suggestion that control of one output influences the *other* output, as recited.

Conclusion

For the above reasons, Appellants respectfully request that the Board of Patent Appeals and Interferences reverse the rejection by the Examiner and mandate the allowance of Claims 1, 2, 7-11, 16-20.

Respectfully submitted,

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Enclosures

Appendix I - Claims on Appeal

1. (Previously Amended) A power supply accepting a mains voltage as an input and outputting a first predetermined voltage from a first terminal and a second predetermined voltage from a second terminal, comprising:

a main circuit for deriving the first predetermined voltage from the mains voltage;

a secondary circuit for deriving the second predetermined voltage from the main circuit, the secondary circuit including a post regulator circuit including a magamp controller; and

a preload circuit applying a preload on the main circuit as a result of the secondary circuit going out of control, the preload circuit including an output directly to the second terminal and an input from the magamp controller.

2. (Original) The power supply of claim 1, the main circuit including a transformer.

3. (Cancelled)

4. (Cancelled)

5. (Cancelled)

6. (Cancelled)

7. (Original) The power supply of claim 1, the preload circuit including a voltage-controlled current source operatively interposed between the main circuit and the secondary circuit.

8. (Original) The power supply of claim 7, the voltage-controlled current source including a transistor having a base, the base of the transistor being associated with the magamp controller of the post regulated circuit.

9. (Original) The power supply of claim 8, further comprising a zener diode operatively disposed between the base of the transistor and the magamp controller of the post regulated circuit.

10. (Original) The power supply of claim 1, wherein the secondary circuit goes out of control as a result of a load on the first terminal being relatively low and a load on the second terminal being relatively high.

11. (Original) The power supply of claim 1, the main circuit including a transformer, and the secondary circuit deriving a second predetermined voltage from the transformer in the main circuit.

12. (Cancelled)

13. (Cancelled)

14. (Cancelled)

15. (Cancelled)

16. (Previously Amended) A printing apparatus comprising:

a first element, selected from a group comprising a charge generator, an imaging light source, a motor, a printhead, and a heat source;

a second element, selected from a group comprising a charge generator, an imaging light source, a motor, a printhead, and a heat source;

a power supply accepting a mains voltage as an input and outputting a first predetermined voltage from a first terminal and a second predetermined voltage from a second terminal;

the first element being associated with the first terminal and the second element being associated with the second terminal;

the power supply including

a main circuit for deriving the first predetermined voltage from the mains voltage,

a secondary circuit for deriving the second predetermined voltage from the main circuit, the secondary circuit including a post regulator circuit including a magamp controller, and

a preload circuit for applying a preload on the main circuit as a result of the secondary circuit going out of control, the preload circuit including an output directly to the second terminal and an input from the magamp controller.

17. (Original) The printing apparatus of claim 16, the secondary circuit in the power supply being a post regulator circuit.

18. (Original) The printing apparatus of claim 16, the preload circuit in the power supply including a voltage-controlled current source operatively interposed between the main circuit and the secondary circuit.

19. (Original) The printing apparatus of claim 16, wherein the secondary circuit goes out of control as a result of a load on the first terminal being relatively low and a load on the second terminal being relatively high.

20. (Original) The printing apparatus of claim 16, the main circuit in the power supply including a transformer, and the secondary circuit deriving a second predetermined voltage from the transformer in the main circuit.

Appendix II - Evidence

NONE

Appendix III – Related Proceedings

NONE